

REMARKS

The claims now pending in the application are Claims 1 to 7, 9, 10, 13 to 28, 31 to 33, 35 to 37, 40 to 45 and 47 to 50, the independent claims being Claims 1, 14, 17, 26, 42, 44 and 48. Claims 8, 11, 12, 29, 30, 34, 38, 39 and 46 previously have been cancelled. Claims 1, 14, 17, 26, 42, 44 and 48 have been amended herein.

In the Official Action, dated December 31, 2003, Claims 44, 45 and 47 were rejected under 35 U.S.C. § 112, second paragraph, on formal grounds. Claims 44, 45 and 47 further were rejected under 35 U.S.C. § 102(b), as anticipated by U.S. Patent No. 5,159,370 (Takahashi); Claims 48 and 50 were rejected under 35 U.S.C. § 102(b), as unpatentable over U.S. Patent No. 5,648,836 (Sato); Claims 1 to 7, 9, 10 and 13 were rejected under 35 U.S.C. § 103(a), as unpatentable over U.S. Patent No. 5,278,601 (Kawanami) in view of U.S. Patent No. 5,485,200 (Shimizu); Claims 14, 17, 26, 40 and 41 were rejected under 35 U.S.C. § 103(a), as unpatentable over the Kawanami '601 patent; Claims 15, 16, 18 to 25, 27, 28, 31 to 33 and 35 to 37 were rejected under 35 U.S.C. § 103(a), as unpatentable over the Kawanami '601 patent in view of the Sato '836 patent; Claims 42 and 43 were rejected under 35 U.S.C. § 103(a), as unpatentable over U.S. Patent No. 5,159,370 (Takahashi) in view of U.S. Patent No. 5,475,456 (Haraguchi); and Claim 49 was rejected under 35 U.S.C. § 103(a), as unpatentable over the Sato '836 patent in view of the Kawanami '601 patent. Reconsideration and withdrawal of the rejections respectfully are requested in view of the above amendments and the following remarks.

The formal rejection and various rejections of the claims over the cited art respectfully are traversed. Nevertheless, without conceding the propriety of the objection and rejections, Claims 1, 14, 17, 26, 42, 44 and 48 have been amended herein even more

clearly to recite various novel features of the present invention, with particular attention to the Examiner's comments. Support for the proposed amendments may be found in the original application. No new matter has been added.

The present invention relates to a novel image pickup apparatus. In one aspect, as now recited in Claim 1, the present invention relates to an image pickup apparatus having a camera body and a lens unit. The image pickup apparatus comprises a ring member for driving the lens unit, detection means for detecting a change amount of a rotation of the ring member, control means, arranged in the lens unit, for performing motion/stop control of at least the lens unit along an optical axis in accordance with a detection result by the detection means, and motion direction setting means, arranged in the camera body, for a user to set a desired motion direction of the lens unit relative to the rotation direction of the ring member; the motion direction setting means comprises (i) character display means, (ii) menu setting means, (iii) display means for displaying an image picked up by the image pickup apparatus, (iv) a menu function control unit for controlling the character display means in accordance with the operation state of the menu setting means operated by the user, and for displaying a predetermined menu on a display screen of the display means, and (v) a setting switch that operates on the predetermined menu displayed on the display means to select a desired setting item from among a plurality of items of the predetermined menu displayed on the display means by the menu function control unit and sets a condition regarding the motion direction of the lens unit.

In another aspect, as now recited in independent Claim 14, the present invention relates to an image pickup apparatus having a camera part and a lens part detachably mounted on the camera part, with a magnification lens and a ring member that

drives the lens part. In this aspect, the image pickup apparatus comprises communication means for performing communication between the camera part and the lens part, detection means which detects a change amount of a rotation of the ring member for driving the lens part, camera control means, provided in the camera part, for selecting and determining a response characteristic between an output of the detection means and a motion of the magnification lens, and for transmitting the selected response characteristic to the lens part, lens control means, provided in the lens part, for receiving information concerning the selected response characteristic transmitted from the camera control means through the communication means, and for controlling the motion of the magnification lens in response to the operation of the ring member in accordance with the selected response characteristic, and storing means, provided in the camera part, for storing information of the response characteristic, where the storing means is arranged so that the camera part holds the selected response characteristic throughout attaching/removing of the lens part, and transmits the stored information of the response characteristic to the lens part attached to the camera part throughout attachment/removal thereof.

Independent Claims 17 and 26 respectively recite similar aspects of the present invention with respect to (i) an image pickup apparatus having a camera part on which a lens part is detachably mountable, where the lens part has a ring member that drives the lens part, and (ii) an image pickup apparatus having an image pickup apparatus main body and a lens part, detachably mounted on the main body, which has a magnification lens and a ring member disposed concentrically about a lens optical axis.

In another aspect, as now recited in independent Claim 42 the present invention relates to an image pickup apparatus comprising a ring member disposed

concentrically about a lens optical axis of a lens unit, detection means for detecting a change amount of rotation of the ring member, control means for performing motion/stop control of at least a magnification lens group along the optical axis in accordance with a detection result by the detection means, and inhibition means for inhibiting the control means from performing the motion/stop control during a predetermined period when the detection means detects a stop of rotation of the ring member, and for causing the control means to continue movement of the magnification lens group when the detection means detects rotation of the ring member during the predetermined period.

In another aspect, as now recited in independent Claim 44, the present invention relates to an image pickup apparatus comprising a ring member disposed concentrically about a lens optical axis of a lens unit, detection means for detecting a change amount of rotation of the ring member, control means for determining motion direction and speed of a magnification lens group in accordance with an output of the detection means and performing motion start/stop control of the magnification lens group along the optical axis, and change means for changing a sensitivity of motion start/stop control of the control means relative to a detection result of the detection means so that the control means does not effect the motion start/stop control until an amount of rotation of the ring member, corresponding to the sensitivity, is detected by the detection means.

In yet another aspect, as now recited in independent Claim 48, the present invention relates to an image pickup apparatus having a magnification lens group. The image pickup apparatus comprises a ring member disposed concentrically about a lens optical axis, detection means for detecting a change amount of a rotation of the ring member, lens control means for determining motion direction and a speed of the

magnification lens group in accordance with an output from the detection means, and for performing motion start/stop control of the magnification lens group along the optical axis, and control means for controlling the lens control means so as to automatically set a sensitivity of the motion start/stop control of the magnification lens group relative to a detection result of the detection means in accordance with a photographing state.

Applicant submits that the prior art fails to anticipate the present invention. Moreover, Applicant submits that there are differences between the subject matter sought to be patented and the prior art, such that the subject matter taken as a whole would not have been obvious to one of ordinary skill in the art at the time the invention was made.

CLAIM 1

Independent Claim 1 has been amended more clearly to recite that an image pickup apparatus of the present invention, which has a camera body and a lens unit, includes motion direction setting means which is arranged in the camera body and comprises a setting switch that operates on a displayed predetermined menu to select a desired setting item from among a plurality of items of the displayed predetermined menu, and sets a condition regarding a motion direction of a lens unit (see, e.g., Fig. 15, element 17).

Applicants submit that the Kawanami and Shimizu patents fail to disclose or suggest at least this feature of the present invention. As acknowledged by the Examiner in the prior Official Action, the Kawanami patent does not disclose motion detection setting means, as recited in independent Claim 1. The Shimizu patent discloses the feature of setting items using a menu screen displayed on a display of a personal computer 15

(Column 5, lines 36 to 46). However, Applicant submits the Shimizu patent fails to disclose or suggest the feature of a camera that includes the claimed motion detection setting means including a setting switch, as disclosed and claimed in the present application. Nor is the Shimizu patent believed to add anything to the Kawanami patent that would make obvious the claimed invention.

CLAIMS 14, 17 AND 26

Independent Claims 14, 17 and 26 have been amended to recite more clearly that an image pickup apparatus of the present invention, which has a camera part and a lens part, includes storing means which is arranged in the camera part and stores a response characteristic between a rotation of a ring member and motion of a magnification lens, where the storing means is arranged so that the camera part holds a selected response characteristic throughout attaching/removing of the lens part, and transmits the stored information of the response characteristic to the lens part attached to the camera part throughout attaching/removing thereof (see, e.g., the ‘third embodiment’, disclosed at page 48, line 6, to page 49, line 8).

Applicant submits that the Kawanami patent fails to disclose or suggest at least this feature of the present invention. Rather, Applicant submits the Kawanami patent merely teaches to use an EEPROM which can hold stored data after an electric power supply is turned off. Applicant submits the Kawanami patent fails to disclose or suggest the claimed relationship between holding and transmitting a response characteristic information of a lens part throughout attaching/removing of the lens part, as disclosed and claimed in the present application.

CLAIM 42

Independent Claim 42 has been amended to recite even more clearly that an image pickup apparatus of the present invention, during a predetermined time period from detection of a stop of rotation of a ring member, stop control is inhibited so that if rotation of the ring member is detected during the predetermined time period after detection of a stop of rotation, control means continues movement of the magnification lens (see, e.g., the '9th embodiment). That is, the present invention *can respond* to rotation of the ring member without performing stop control if rotation is detected during the predetermined time period after detection of stop of rotation of the ring member. Applicant submits that the Takahashi and Haraguchi patents fail to disclose or suggest at least these features.

As acknowledged by the Examiner, the Takahashi patent fails to disclose or suggest the claimed inhibition means. Applicant submits that the Haraguchi patent discloses the feature to continue to drive a lens during a predetermined period after a stop command has been issued, and to stop the lens precisely at a terminal position. However, Applicant notes that this is only a stop operation of the lens; Applicant submits that the Haraguchi patent fails to disclose or suggest a feature where the inhibition means also causes/permits lens control means to continue drive of a lens when rotation of a ring member of the lens again is detected during the predetermined time period, as disclosed and claimed in the present application. Nor is the Haraguchi patent understood to add anything to the Takahashi patent that would make obvious the claimed invention.

CLAIM 44

Independent Claim 44 has been amended to recite even more clearly that an image pickup apparatus of the present invention is arranged to change the sensitivity of motion start/stop control of a magnification lens by control means (relative to a change amount of rotation of a ring member) so that the control means does not effect the motion start/stop control of the magnification lens until an amount of rotation of the ring member corresponding to the set sensitivity is detected (see, e.g., the '10th embodiment').

Applicant submits the Takahashi patent merely teaches (e.g., at column 10, lines 1 to 10) to change a lens drive/zoom speed in accordance with a focal length; Applicant submits that the Takahashi patent fails to disclose or suggest the feature where motion start/stop control is controlled based on the set sensitivity, as disclosed and claimed in the present application.

CLAIM 48

Independent Claim 48 has been amended to recite even more clearly that an image pickup apparatus of the present invention automatically sets a sensitivity of motion start/stop control of a magnification lens (relative to a change amount of a rotation of a ring member) in accordance with a photographing state (see, e.g., the '10th embodiment and Fig. 22).

Applicant submits that the Sato patent and the Kawamuri patent fail to disclose or suggest at least this feature. The Sato patent merely illustrates in Fig. 1 and disclosed in the corresponding text that a user sets a power zoom operation (Column 5, lines 10 to 19; Column 7, lines 19 to 26; Column 8, lines 31 to 46). This feature is

distinguishable from the present invention recited in the amended independent Claim 48, in which the sensitivity of a motion start/stop control is set. Nor is the Kawamuri patent understood to add anything to the Sato patent that would make obvious the claimed invention.

For the above reasons, Applicant submits that Claims 1, 14, 17, 26, 42, 44 and 48 are allowable over the cited art.

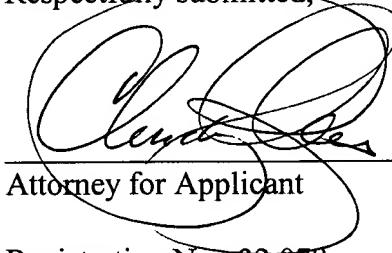
The remaining claims variously depend from Claims 1, 14, 17, 26, 42, 44 and 48, and are believed allowable for the same reasons. Moreover, each of these claims recites additional features in combination with the features of its respective base claim, and is believed allowable in its own right. Individual consideration of the dependent claims respectfully is requested.

Applicant requests that the present Amendment be entered under 37 CFR § 1.116. Applicant submits that the present amendments merely are minor or formal in nature, and reduce the number of issues for consideration. Applicant believes the present Amendment was necessitated by the outstanding Official Action, and submits that the present amendments were not previously made because Applicant believes the prior claims are allowable.

Applicant believes that the present Amendment is responsive to each of the points raised in the Official Action, and submit that the Application is in condition for allowance. Favorable consideration of the claims and passage to issue of the present application at the Examiner's earliest convenience earnestly are solicited.

Applicant's attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



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